Scaling Interoperable Trust through a Trustmark Marketplace

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In the Beginning…

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Lots of Application-Specific Identity Silos

Application A

Application B

Application C

Application D

Application E

Along Came Federated Identity…

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Decoupl... ...Applications!

Attribute Provider

Identity Provider

Standard Protocols

Application (Service Provider)

User

So what about Trust, Liability, Security?

And Today…

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Lots of **Federated** Identity Silos
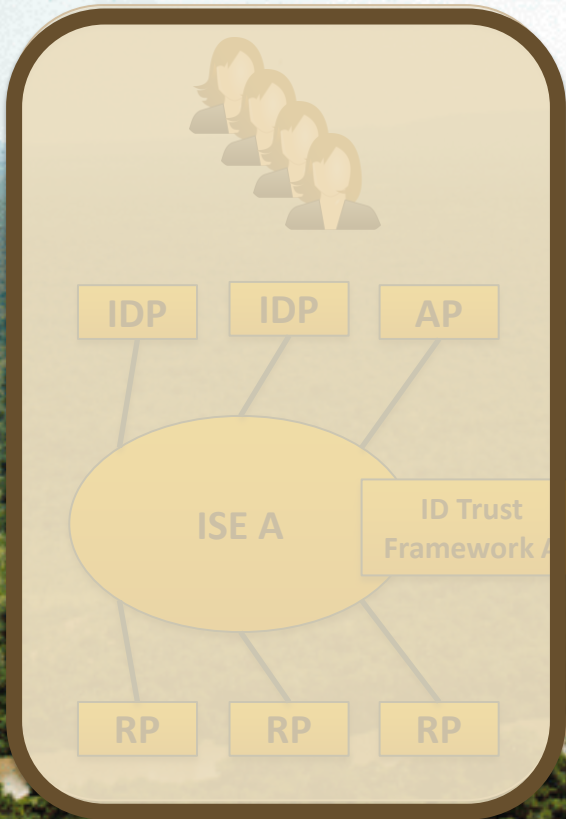
Trust Framework X

Info Sharing Environment Y
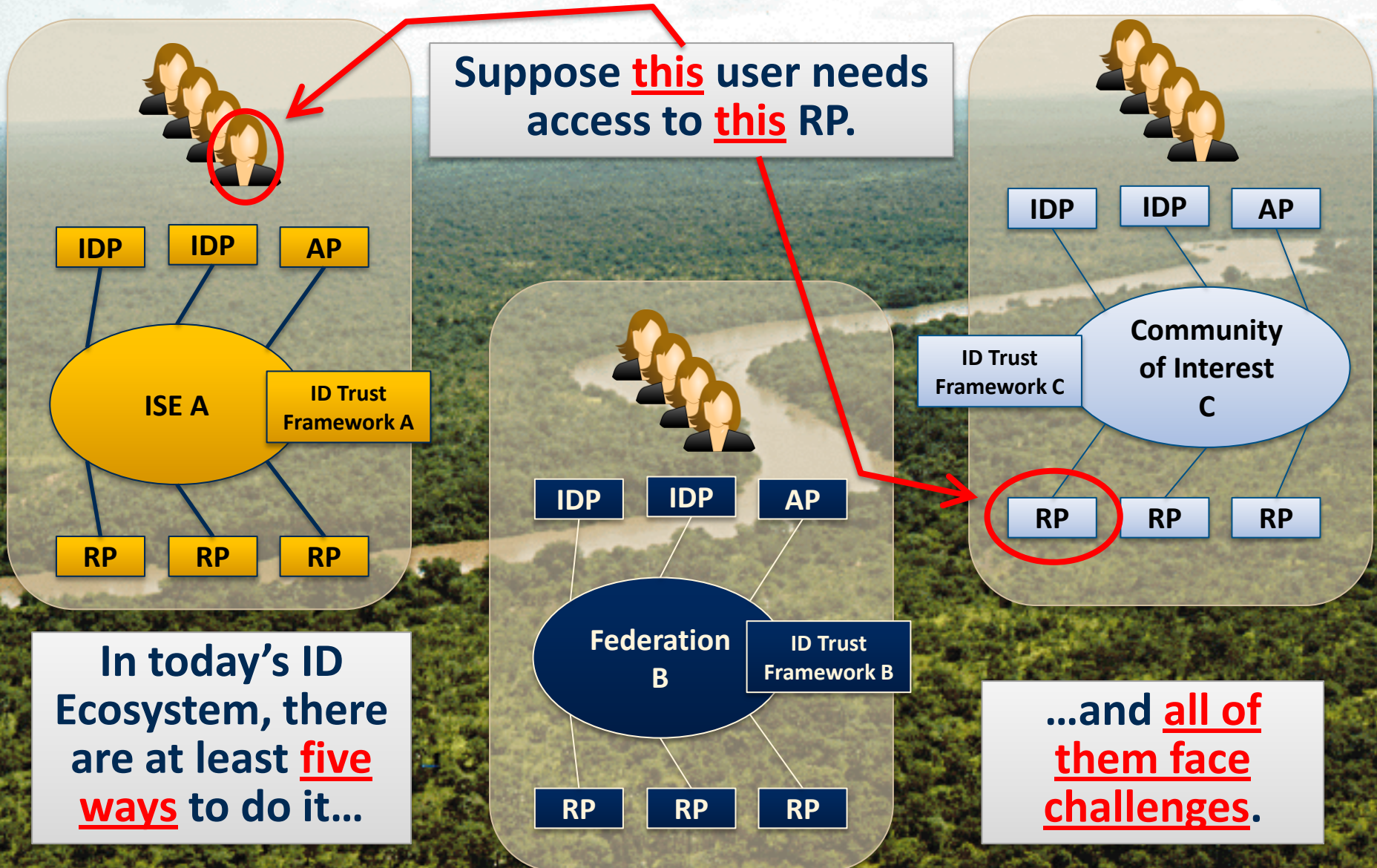
Federation Z

Community of Interest ABC

Other Federation

Current State of the Identity Ecosystem

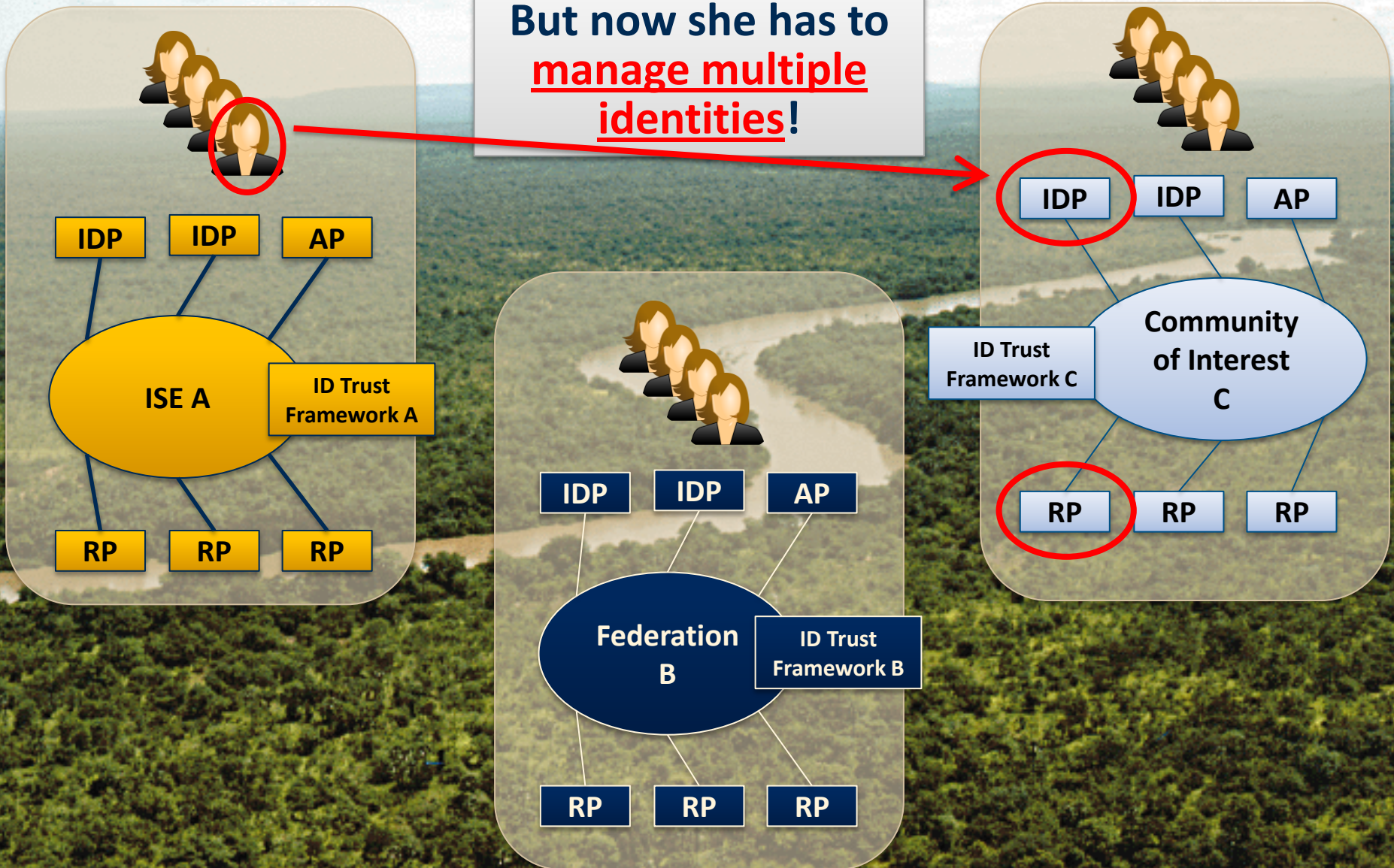**Many Trust Frameworks are monolithic and opaque.**

IDP IDP AP

ISE A ID Trust Framework A

RP RP RP

IDP IDP AP

Federation B ID Trust Framework B

RP RP RP

IDP IDP AP

ID Trust Framework C Community of Interest C

RP RP RP

Achieving Cross-Framework Trust

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Suppose **this** user needs access to **this** RP.

IDP **IDP** **AP**

ISE A | ID Trust Framework A

RP **RP** **RP**

In today's ID Ecosystem, there are at least **five ways** to do it...

IDP **IDP** **AP**

Federation B | ID Trust Framework B

RP **RP** **RP**

IDP **IDP** **AP**

ID Trust Framework C | **Community of Interest C**

RP **RP** **RP**

...and **all of them face challenges**.
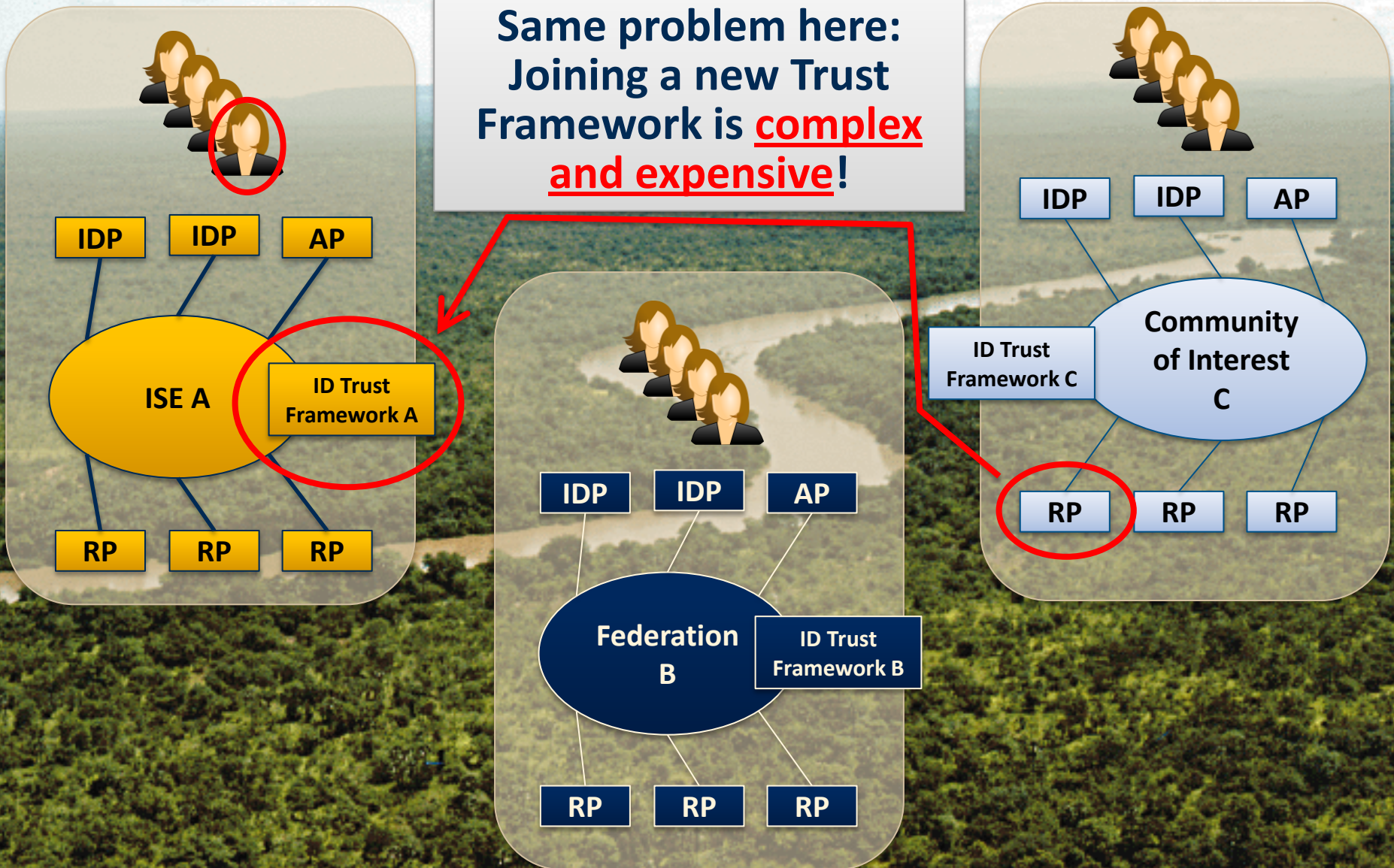
Option #2: IDP Joins New Trust Framework

But joining a new Trust Framework is <u>complex and expensive</u>!

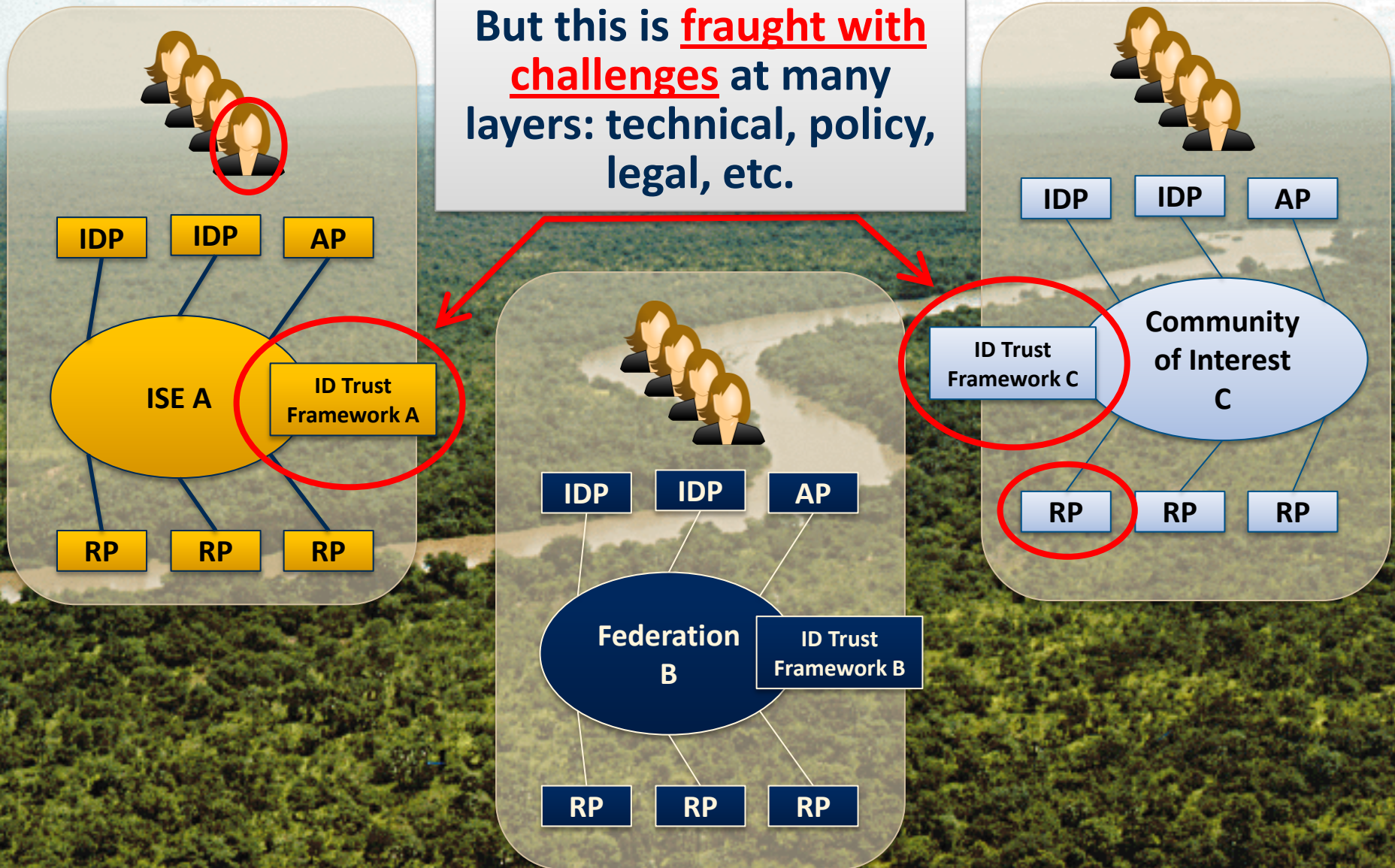# Option #3: RP Joins New Trust Framework

Same problem here: Joining a new Trust Framework is **complex and expensive**!

IDP **IDP** **AP**

ISE A **ID Trust Framework A**

RP **RP** **RP**

IDP **IDP** **AP**

Federation B **ID Trust Framework B**

RP **RP** **RP**

IDP **IDP** **AP**

ID Trust Framework C **Community of Interest C**

RP **RP** **RP**

Option #4: Cross-Framework Relationship

But this is **fraught with challenges** at many layers: technical, policy, legal, etc.

ISE A — ID Trust Framework A
IDP, IDP, AP
RP, RP, RP

Federation B — ID Trust Framework B
IDP, IDP, AP
RP, RP, RP
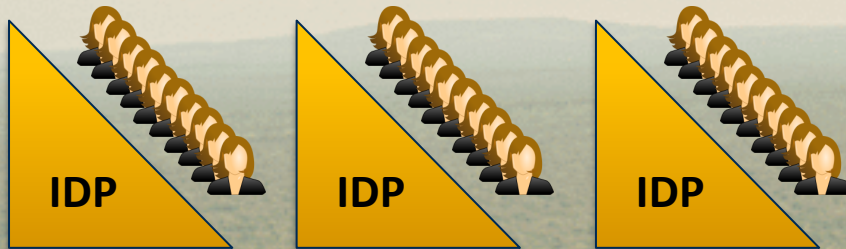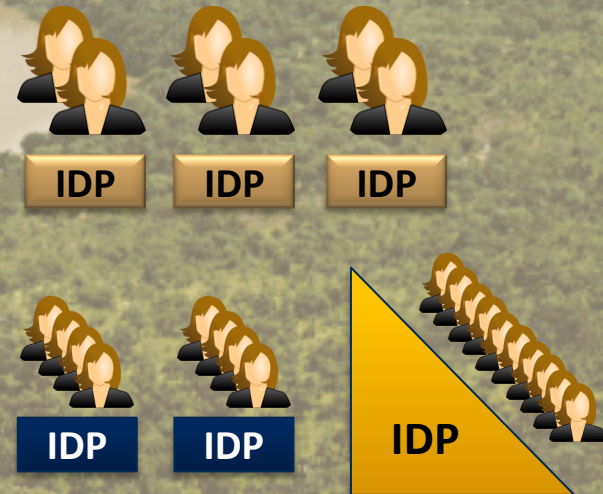
Community of Interest C — ID Trust Framework C
IDP, IDP, AP
RP, RP, RP

A Variety of ID Ecosystem Perspectives

Will the ID Ecosystem have <u>very few IDPs with consistent user bases and requirements</u>?
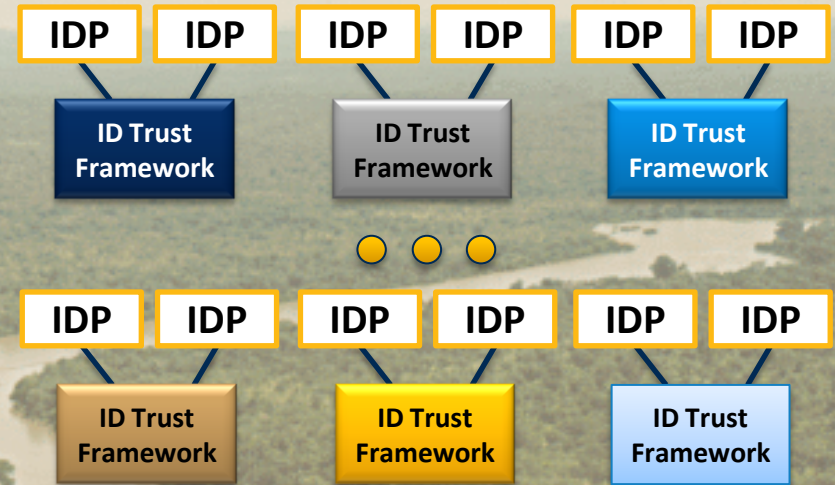
Or a <u>large number of IDPs with heterogeneous user bases and requirements</u>?

A Variety of ID Ecosystem Perspectives

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Will the ID Ecosystem have many trust frameworks with few IDPs in each?

IDP IDP IDP IDP IDP IDP

ID Trust Framework   ID Trust Framework   ID Trust Framework

● ● ●

IDP IDP IDP IDP IDP IDP

ID Trust Framework   ID Trust Framework   ID Trust Framework

IDP IDP IDP IDP IDP IDP IDP   IDP IDP IDP IDP IDP IDP IDP

ID Trust Framework   **ID Trust Framework**

Or few trust frameworks with many IDPs in each?

IDP IDP IDP IDP IDP IDP IDP   IDP IDP IDP IDP IDP IDP IDP

A Variety of ID Ecosystem Perspectives

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Is the ID Ecosystem only about identification and authentication?

Identity Provider ——— Jane Doe ——→ Relying Party

Or are attributes and authorization fundamental to it?

Jane Doe

DOB: 3 May 1985
Sex: F
Height: 5' 6''
Clearance: SECRET
28 CFR Part 23: YES
SLEO: YES
Employer: NYPD

Identity Provider ——→ Relying Party

Access Control Policy

Is it OK if the Trust Frameworks in the ID Ecosystem are mostly non-interoperable and non-trusting **identity silos**?

Or does success demand that we at least provide a **viable strategy and framework for trust and interoperability** between various COIs, ISEs, and Federations?

The Perspective from the LE Community

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Law Enforcement COI has over **1 million people** in the US alone

Over **10,000 US LE agencies**

Required to **share data across jurisdictions**

But **must obey applicable access controls** when sharing

LE agencies are autonomous **(NOT centrally funded)**

Trust between agencies is a **fundamental requirement**

3rd party trust is required due to COI size and complexity

Most users must have **high-assurance credentials**

Legitimate business need to **interact with many other COIs**

LE agencies are highly **heterogeneous**

Federal Agencies	State Agencies	Local Agencies	Tribal Agencies	Task Forces	Fusion Centers

The Perspective from the LE Community

What about a Trustmark Framework?

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If the frameworks were modular…

ID Trust Framework A

ID Trust Framework B

ID Trust Framework C

| FICAM SAML SSO | FIPPs | NIST 800-63 LOA 3 | OAuth | OpenID | FIPS 200 |

…then we get:

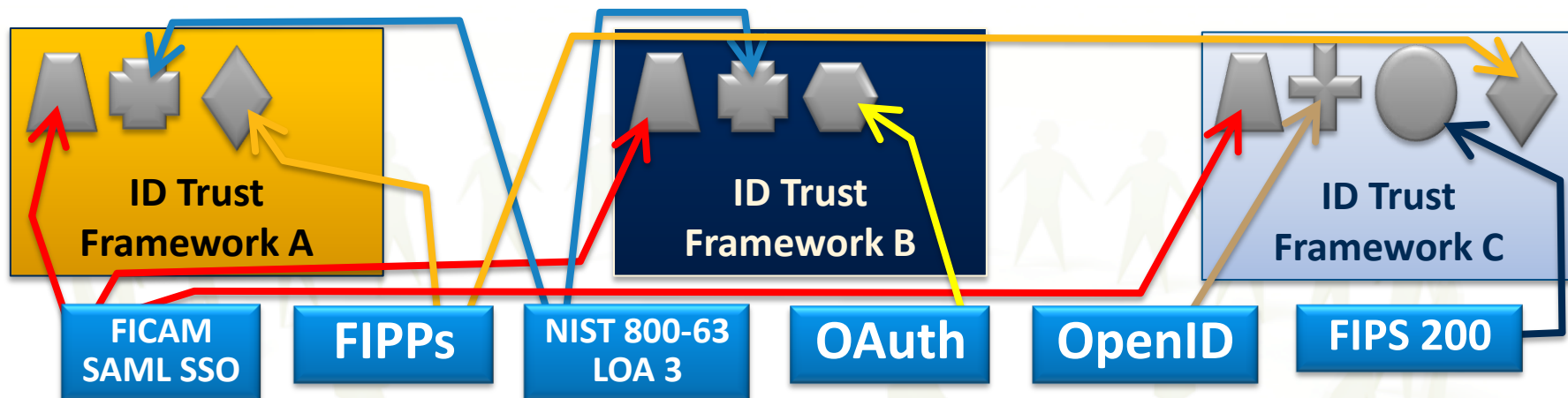Greater **transparency** of trust framework requirements

Greater **ease of comparability** between frameworks

Greater **potential for reusability** of framework components

And, most importantly:

Greater **potential for participation in multiple trust frameworks** by ID Ecosystem members with incremental effort and cost

What about a Trustmark Framework?

These modular components are called **Trustmarks**.
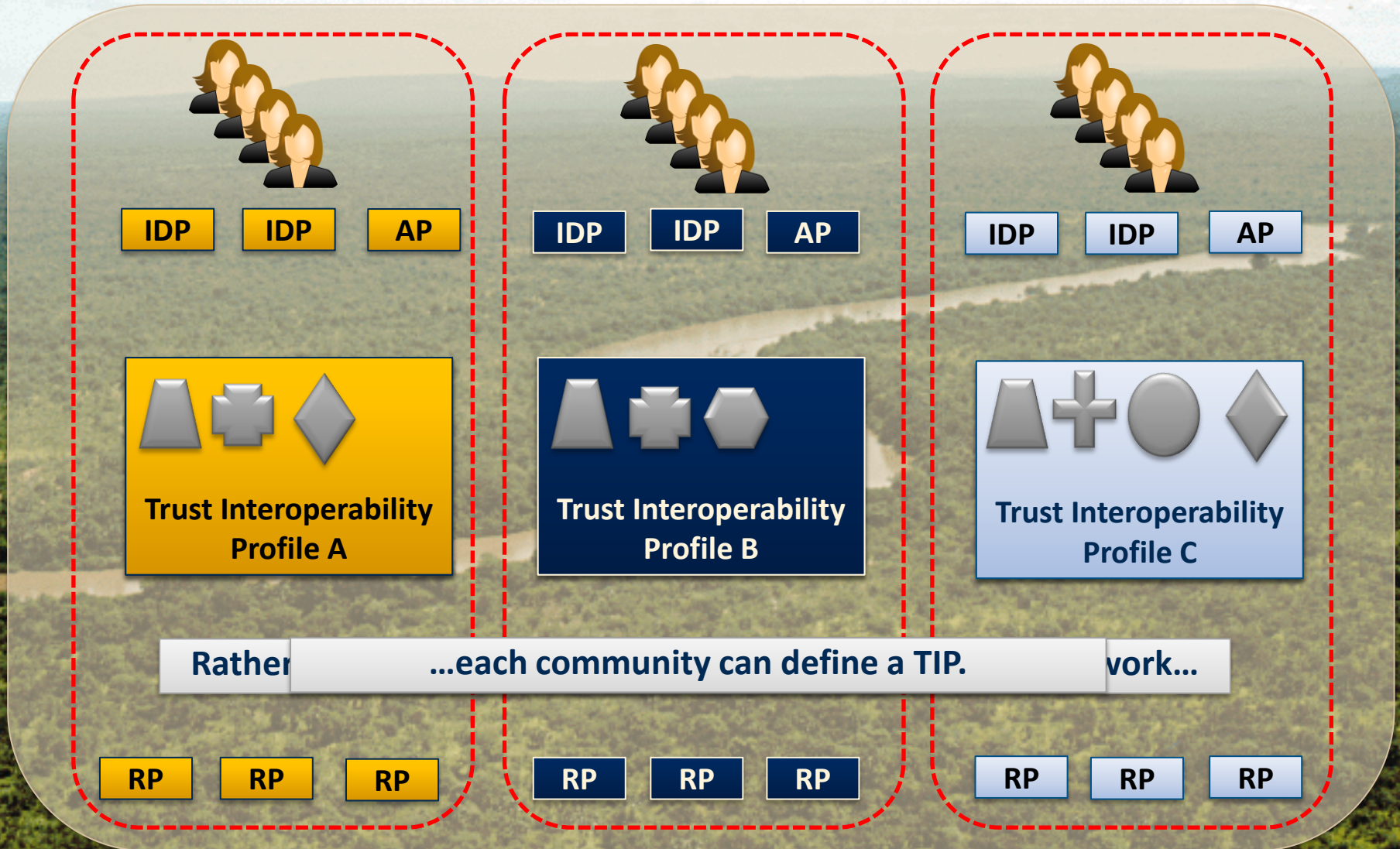
A Few Examples of Trustmarks

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FICAM SAML SSO Profile

NIST 800-63 / FICAM LOA 3 Identity

Fair Information Practice Principles (FIPPs)

FIPS 200 Security Practices

GFIPM Metadata Registry (User Attributes)

Technical
Trust
Privacy
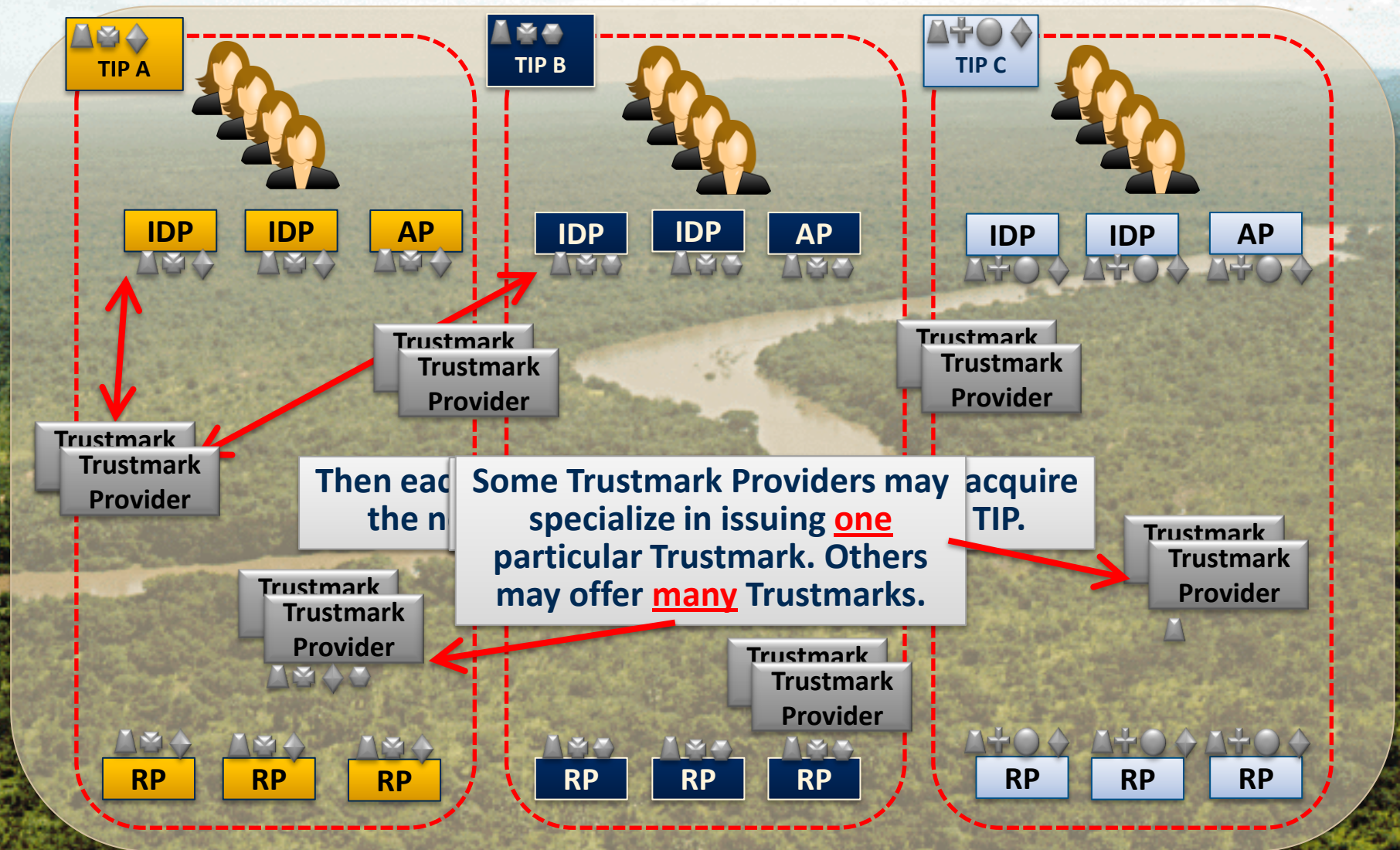Security
Business

Trustmark Policies & Trustmark Agreements
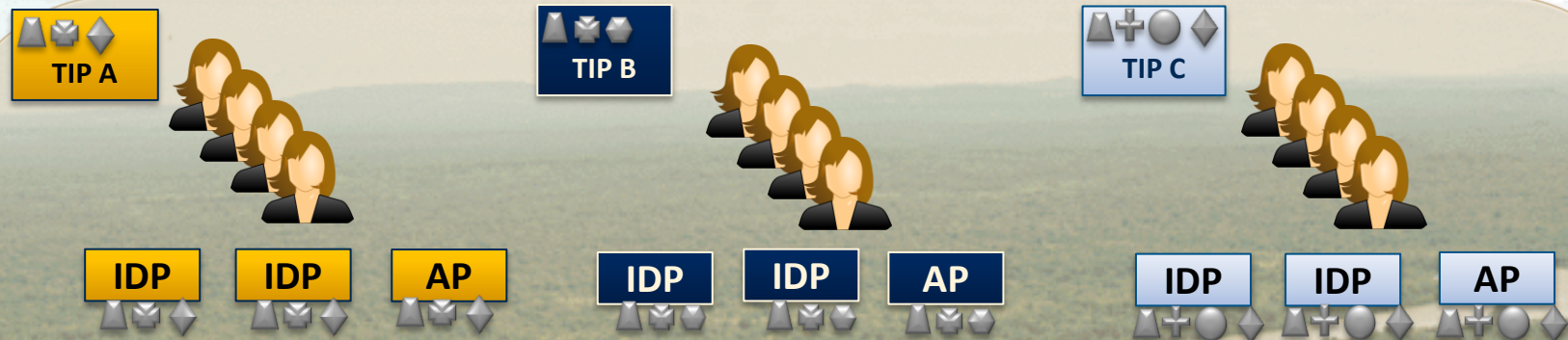
Legal

A Trustmark-Based ID Ecosystem

A Trustmark-Based ID Ecosystem

A Trustmark-Based ID Ecosystem

TIP A

TIP B

TIP C

IDP   IDP   AP

IDP   IDP   AP

IDP   IDP   AP

Trustmark Provider

Trustmark Provider

Trustmark Provider

Members of the ID ~~can query~~ **ark Registry to answer questions such**

"What other mem
necessa ~~ark~~

Trustmark Provider

This collection of actors and entities is the Trustmark Marketplace.

"What Trustmarks must ~~to meet the~~
requirements ~~ER>?"~~

Trustmark Provider

Trustmark Provider

IDP X:
RP Y:
Etc.

Trustmark Registry

RP   RP   RP

RP   RP   RP

RP   RP   RP

- Expanded from a handful to over 120 trustmarks

#	TD Name	Source	In Use in NIEF?	Essential to Pilot?	Type	Related Periodic Trust Elements	Related TDs
1	FICAM Bona Fides IDPO TD	FICAM TFPAP, Section 3.3	n	y	bona fides	Identity vetting of	NIEF Bona Fides IDPO TD
2	FICAM LOA 2 Assertions TD	NIST SP 800-63-1, Chapter 9. FICAM TFPAP, Appendix A-2, Assertions.	n	y	policy: ID assurance		GFIPM SAML SSO Profile IDP TD. FICAM SAML SSO Profile IDP TD.
3	FICAM LOA 2 Authentication Process TD	NIST SP 800-63-1, Chapter 8. FICAM TFPAP, Appendix A-2, Authentication Process. NIEF Audit Policy, Section 4.1.4.	n	y	policy: ID assurance	Assurance - Authentication rules	
4	FICAM LOA 2 Registration and Issuance TD	NIST SP 800-63-1, Chapter 5. FICAM TFPAP, Appendix A-2, Registration and Issuance. NIEF Audit Policy, Section 4.1.1.	n	y	policy: ID assurance	Assurance - Identity proofing Assurance -	
5	FICAM LOA 2 Token and Credential Management TD	NIST SP 800-63-1, Chapter 7. FICAM TFPAP, Appendix A-2, Token and Credential Management. NIEF Audit Policy, Section 4.1.3.	n	y	policy: ID assurance	Assurance - Credential management	
...	...	...	...	...	...	...	...
117	ICAM BAE Metadata Consumption TD	ICAM BAE SAML Metadata Profile, Section 2	?	n	tech trust		GFIPM SAML Metadata Consumption TD
118	ICAM BAE SAML Protocol Requester TD	ICAM BAE SAML Profiles, Section 4	?	n	tech interop		GFIPM-WS Attribute Provider SIP AC TD
119	ICAM BAE SAML Protocol Responder TD	ICAM BAE SAML Profiles, Section 4	?	n	tech interop		GFIPM-WS Attribute Provider SIP AP TD
120	NIEF Bona Fides APO TD	NIEF Audit Policy, Section 4.5. NIEF Membership Agreement. NIEF APO Participation Agreement.	n	n	bona fides	Identity vetting of members	
121	NIEF Bona Fides SCO TD	NIEF Audit Policy, Section 4.5. NIEF Membership Agreement. NIEF SCO Participation Agreement.	n	n	bona fides	Identity vetting of members	
122	NIEF Bona Fides TIBO TD	NIEF Audit Policy, Section 4.5. NIEF Membership Agreement. NIEF TIBO Participation Agreement.	y	n	bona fides	Identity vetting of members	

Trustmarks By Category

Identity Assurance Policy
(10 Total, 10 Essential to Pilot)

Security Policy
(18 Total, 18 Essential to Pilot)

Privacy Policy
(23 Total, 15 Essential to Pilot)

Attribute Assurance Policy
(2 Total, 2 Essential to Pilot)

Technical Interoperability
(57 Total, 8 Essential to Pilot)

Organizational Integrity / Bona Fides
(6 Total, 3 Essential to Pilot)

Technical Trust
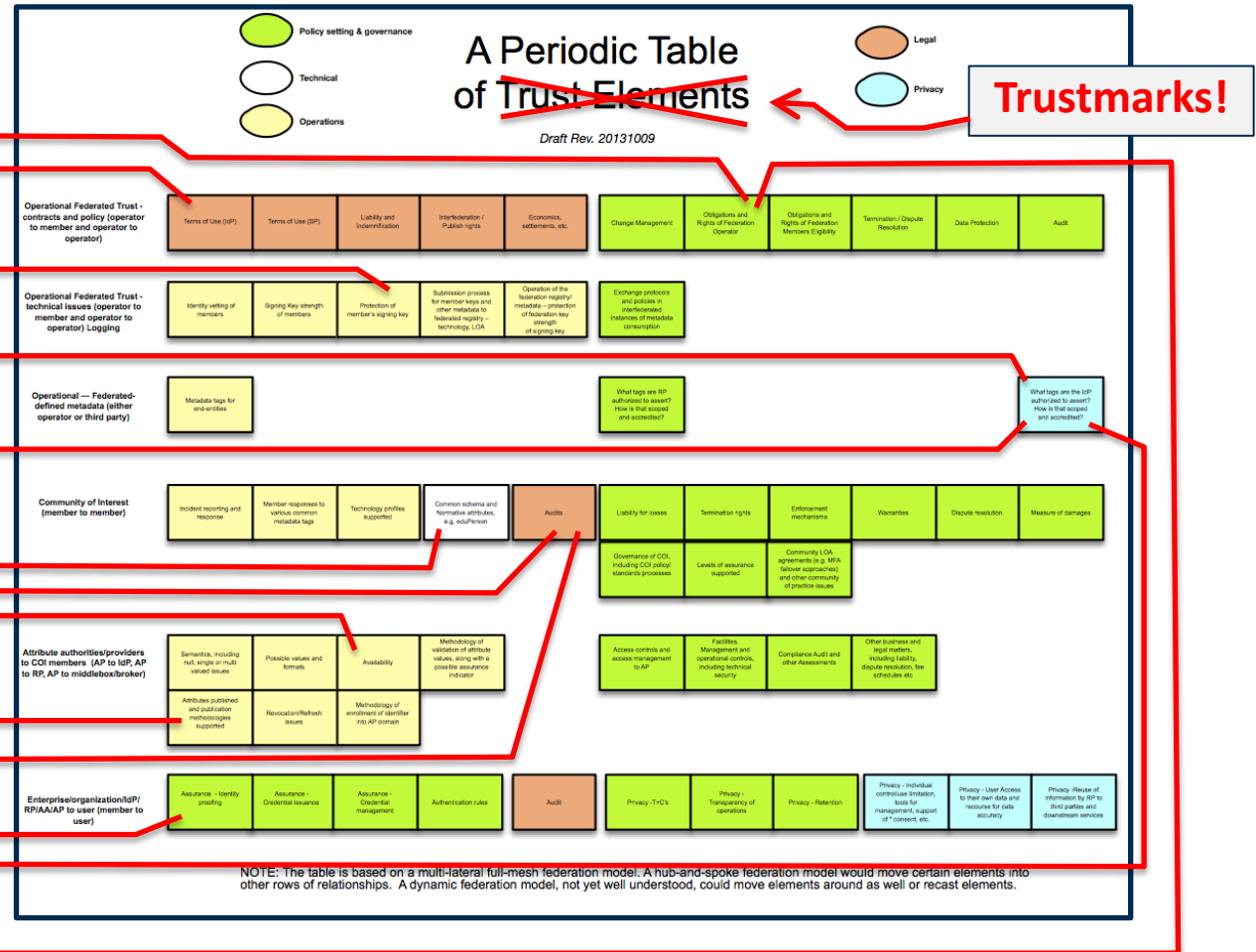(4 Total, 3 Essential to Pilot)

Usability
(2 Total, 0 Essential to Pilot)

Another Component Perspective

Source: Ken Klingenstein, Internet 2

Scope of the NSTIC Trustmark Pilot

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1 Concept Maturation
- Trustmark Concept Presentation
- Trustmark Pilot Concept Website
- Outreach to IDESG
- Outreach to NIEF Membership
- Outreach to SICAM Stakeholders
- Outreach to Other Stakeholders

2 Trustmark Framework
- Normative Trustmark Spec
- Normative TD Spec
- Normative TIP Spec
- Trustmark Policy Template
- Trustmark Agreement Template

3 Sample TDs, TIPs, and Trustmarks
- Comm. Protocol TDs & Trustmarks
- Identity LOA TDs & Trustmarks
- End-User Privacy TDs & Trustmarks
- Security Policy TDs & Trustmarks
- Other TDs & Trustmarks
- Sample TIPs for NIEF Community

4 Sample Tools
- Trustmark Assessment Tool for Trustmark Providers
- Trustmark Generating & Publishing Tool for Trustmark Providers
- Trustmark Registry Query Tool

5 NIEF Pilot
- Issue Trustmarks to Current NIEF Members
- Modify Tech Framework, Specs, TDs, TIPs, Policies, Agreements, and Tools as Needed

6 Expanded Pilot via NASCIO/SICAM
- Identify SICAM Use Cases
- Issue Trustmarks to More IDPs, APs, and RPs via a New Trustmark Provider
- Demonstrate SICAM Use Cases in a Multiple-Trustmark-Provider Marketplace

Coming Soon……

https://trustmark.gtri.gatech.edu

The Trustmark Concept Map

High-Level Project Plan & Timeline

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Q4 2013	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015	Q3 2015

Develop Concept

Refine Concept as Needed

Develop Trustmark Framework

Refine Framework as Needed

Develop Sample TDs, Trustmarks, and TIPs

Refine TDs, Trustmarks, and TIPs as Needed

Develop and Refine Sample Trustmark Software Tools

Develop SICAM Use Cases & Scenarios

Refine Use Cases & Scenarios as Needed

Trustmark Pilot in NIEF

Outreach/Prep for Expanded Pilot

Expanded Trustmark Pilot

SICAM Demo

Community Outreach

Project Oversight & Reporting

The NIEF QuickStart Program

Started in October 2013

Goal #1: Drive wider adoption of NIEF among state agencies

Goal #2: Streamline the NIEF onboarding process to drive more rapid NIEF adoption

Timeframe: 12 Months

Objective: Identity at least 3 candidate agencies and onboard them into NIEF

Texas Department of Public Safety

TXMAP Web Mapping Application

data samples

what is it?

The TXMAP application is a multi-faceted data mapping and reporting tool created by the Texas Department of Public Safety. TXMAP provides users access to a variety of data ranging from secure critical infrastructure and law enforcement data to public data such as registered sex offender home addresses.

who is it for?

TXMAP would be a useful resource for:

- Law enforcement agencies
- Public safety organizations
- Emergency management groups

contacts

Paul Brown
Paul.brown@dps.texas.gov
P |512-424-7691

Shannon Wade
Shannon.wade@dps.texas.gov
P |512-424-7403

available Fall 2013

CargoNet

The Cargo Theft Prevention and Recovery Network

what is it?

CargoNet provides a multi-layered solution to the cargo theft problem. CargoNet helps prevent cargo theft and increases recovery rates by facilitating secure information sharing among theft victims, their business partners, and law enforcement. CargoNet offers **A 24 hours a day, 7 days a week** fusion center and cargo recovery network – staffed with security experts always available.

who is it for?

CargoNet is would be a useful resource for:
- Law Enforcement agencies
- Transportation industry
- Insurance industry
- Retail Industry

contact

Nigel DeFretias
CTO- Verisk Crime Analytics
W: 201.469.3939
ndefretias@verisk.com

status

Implementing SSO interface, beta testing anticipated in fall of 2013

CargoNet®

The RISS Program is funded by Congress and administered by the Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice (DOJ).

The **RISSNET Portal currently** provides secure access to services and resources to more than 9,000 federal, state, local, and tribal law member enforcement agencies as well as public safety and Critical Infrastructure / Key Resource (CI / KR) communities. In addition, RISS' participation in NIEF allows RISS to provide different levels of authorization to NIEF users based upon user attributes.

- RISS Resources available to <u>all</u> federated partner users:

  - RISS ATIX Website - RISS TechPage - Intelink-U

- RISS Resources available only to Sworn Law Enforcement Officers (SLEO) or those acting for SLEO:

  - RISS National Gang Program (RISSGang) Web Site - RISS Officer Safety Website - Cold Case Locator System, National Criminal Intelligence Resource Center (NCIRC) - National Motor Vehicle Title Information System (NMVTIS) - Nationwide SAR Initiative (NSI) Search Tool (must have SAR account) - Federal law Enforcement Training Center (FLETC) Electronic Learning Portal (ELP)

Contact: Larry Maloney
(lmaloney@risstech.riss.net)

Bureau of Justice Assistance
U.S. Department of Justice

Tennessee
Meth & Pharmaceutical Task Force

Target Audience – Law Enforcement Use Only

TMIS (Tennessee Meth Intelligence System) is the State Repository for Meth Intelligence including Meth Lab Seizure Reporting, Pseudoephedrine Sales Tracking Information, and other intelligence. TMIS features computer generated and manual association development of suspects, cell phone analysis, custom searches, and automated notification of updates.

Status of Availability – Scheduled for Deployment Dec. 2013

Sponsoring Agency – Tennessee Bureau of Investigation

Contact Jim Derry at 423-752-1479 or
jderry@rid-meth.org

If you cook it, we will come!

Tennessee Pain Clinics per County
284 Total Pain Clinics in Tennessee

Tennessee Clandestine Meth Lab Seizures
15,682 Meth Lab Seizures Reported from 1999 through June, 2013

2,468 Children Reported Affected at Meth Lab Seizure Locations.
1,777 Meth Lab Sites Have Been Quarantined.

Top Lab Seizure Counties	
County	Seizures
McMinn	832
Hamilton	819
Anderson	779
Monroe	621
Warren	619
Bradley	610

Legend
State of TN
Lab Seizures

Homeland Security
HSIN | Homeland Security Information Network

HSIN is the nation's platform for sharing sensitive but unclassified information – enabling the Homeland Security Enterprise, its Federal, State, local, tribal, territorial, international and private sector partners, to meet their mission requirements through trusted information sharing.

HSIN Serves

- *Emergency Management*
- *Law Enforcement*
- *Public Health & Natural Resources*
- *Intelligence & Analysis*
- *Defense*
- *Emergency Services*

HSIN Offers

- *Incident and Event Collaboration*
- *Cross Community/Mission Information Sharing*
- *Operational Awareness & Coordination*
- *Real time Communication Tools*
- *Geospatial*

Contact
Tracy Hollis
Tracy.hollis@hwq.dhs.gov
202-357-6108

HSIN – DHS trusted information sharing and collaboration for mission partners

Apiary Threat Intelligence Framework

What is Apiary?

Apiary is an automated framework for malware analysis and threat intelligence. Members of our vetted community anonymously upload malware and benefit from the ongoing addition of in-depth malware correlation and behavior analysis. The results are delivered automatically within a secure sharing environment. The community is intended for analysts, investigators, or companies trying to protect their organization from malware.

Apiary processes approximately 150,000 malware samples per day allowing analysts to see the 'big picture' relationships and trends between malware samples. Our analysis techniques are backed by cutting edge research contributed by Apiary malware researchers as well as by members of the Apiary community. By automating the malware analysis process and sharing analysis data amongst a trusted community, organizations can confidently make security decisions.

Who uses Apiary

Apiary is currently being used in both the private and public sector. The community includes organizations from many industries including finance, oil and gas, utilities, retail, and more. Additionally, Apiary is used by local, state, and federal government organizations including law enforcement and education. The community is open, however all members are vetted before being allowed to access.

Apiary and NIEF

Apiary will be integrated with NIEF by the end of 2013.

Points of Contact

For more information about Apiary, or to request to join the community, please email:

apiary-info@gtri.gatech.edu

LA County Criminal History

Target Audience – Law Enforcement , Probation and Prosecution

CCHRS is the LA County Criminal History System used by Investigators and Prosecutors for filing criminal cases within LA County. It contains over 12,000,000 subjects with their record of arrests, convictions, sentences, custody status, probation status, demographics and biometric identifiers. Over 44 local police agencies, LA Sheriff, LA District Attorney and LA Probation utilize CCHRS for their daily operations with 10,000+ transactions per day.

Status – Available Now (CCHRS-lite)

Sponsoring Agency – LA County Sheriff

Contact Rolf Embom at 562-403-6559 or
rembom@isd.lacounty.gov

Brought to you by

Powered by

A trusted provider of superior training and specialized technical assistance services for law enforcement and public safety through innovative and effective solutions, the Institute for Intergovernmental Research (IIR) currently supports online training for multiple programs funded by the Bureau of Justice Assistance, including the Center for Task Force Leadership and Integrity (CTFLI), the State and Local Anti-Terrorism Training (SLATT®) Program, and VALOR, an officer-safety program. National Identify Exchange Federation (NIEF)-based credentials currently allow access to VALOR training and are expected to expand to other IIR-supported programs in the future.

CTFLI www.cftli.org

The Center for Task Force Leadership and Integrity (CTFLI) is a restricted-access Web site providing training and resources that address the varying needs of law enforcement officers involved in task force operations. CTFLI assists state, local, and tribal law enforcement task force personnel in effectively combating multijurisdictional criminal organizations, while operating with integrity and accountability with regard to individuals' privacy, civil rights, and civil liberties and promoting officer safety.

SLATT www.slatt.org

The SLATT Program provides specialized, critical multiagency anti-terrorism detection, investigation, and interdiction training and resources to our nation's state, local, and tribal law enforcement and prosecution authorities, who face the challenges presented by the terrorist/violent criminal extremist threat.

VALOR www.valorforblue.org

VALOR is an initiative designed to help prevent violence against law enforcement and ensure officer resilience and survivability following violent encounters during the course of their duties. Online training and resources are provided to state, local, and tribal law enforcement professionals through the valorforblue.org portal.

NIEF Portal

Organization Admins use the NIEF Portal to manage their organization's details within NIEF.

NIEF Users discover available resources and whether their credential will grant them access.

Point of Contacts
John Wandelt: John.Wandelt@gtri.gatech.edu
Matthew Moyer: Matthew.Moyer@gtri.gatech.edu

Operated on behalf of the NIEF Center by GTRI

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Welcome to the NIEF Discovery Service

In order to access a service on host 'nief.gfipm.net' please select or search the organisation you are affiliated with.

Type the name of the organisation you are affiliated with   Select

Type the name of the organisation you are affiliated with
NIEF Members
LAC ISAB
Regional Information Sharing Systems (RISS)
CISAnet
Institute for Intergovernmental Research (IIR)
Texas DPS - External
Texas DPS - Internal

Relationship of Programs to NIEF

- FICAM
  - NIEF Technical specs and policies are aligned with FICAM
  - NIEF has submitted formal application to be approved as a FICAM Trust Framework Provider @ LOA 2 and non-PKI LOA 3
- SICAM
  - SICAM currently only provides high-level guidance
  - Leverages FICAM and FICAM TFP initiatives
  - NIEF working with NASCIO to further mature SICAM through NIEF Quick Start program and NIEF NSTIC pilots
- NSTIC
  - Scope is broader than FICAM but leverages FICAM
  - NIEF selected by NIST to be a NSTIC pilot to demonstrate Scalable Trust and Interoperability through a Trustmark Marketplace
- BAE
  - NIEF piloted first operational BAE implementation in partnership with GSA, PM-ISE, TX DPS, RISS, IIR
  - NIEF has adopted BAE profile for Attribute Providers
- PIV/PIV-I
  - Under the sponsorship of DHS S&T and in partnership with JHAPL, GTRI to develop a proof of concept Gateway between the PIV-I community and NIEF
  - Also Leverages the BAE to collect additional attributes not on the PIV-I card